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SALPINGITIS: ITS DIAGNOSIS AND TREATMENT.

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READ BEFORE THE

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In presenting this paper to the Society, I hope to provoke a discussion, from which may result a more definite answer to the question which arises in my mind with every case that comes to me. It is, "how much can any medical treatment do for a completely closed fallopian tube, filled with an aqueous, or purulent secretion?"

Many conservative physicians think that the monopoly of the treatment of this morbid condition by surgeons, and by surgical methods is highly improper. Even Dr. W. H. Byford thinks the loss of these organs is, in many instances, a "useless sacrifice." All, however, concede the uncertainty in diagnosis, in its first stage; hence the difficulty of treatment in the last, because in nearly all cases a cure by medication seems to have become as impossible as for a broken tibia united in a sharp flexure to be made straight. It may be even worse, for the tube has, in some instances, lost its vital function, and is virtually a foreign body.

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We can anticipate salpingitis in certain conditions, although, if we find a patient ill with pelvic peritonitis, there is no certainty of its resulting in a closure of the free extremity of the fallopian tube; neither do we know if there will be the same result with a pelvic phlegmon, or inflamed ovary. If a patient has a catarrhal fever, we are not sure of its resulting in an endo—or mural-salpingitis.

The etiology of the disease is, however, a very interesting study, though we do not advance very rapidly in learning cause and effect, in this rather obscure affection, as it is so intimately associated with diseased ovaries, and inflammation of the pelvic peritonium, as well as that of surrounding connective tissue.

I will here give two cases that I have recently treated by the surgical method, in which the cure seems complete, and the patients report themselves well. In each case, so far as I could learn from their histories, the disease was of comparatively short duration, especially so, for the condition in which the diseased organs were found.

Case 1.—Was Mrs. G. H., of English birth, 24 years of age, and divorced. She entered the Chicago Hospital for Women and Children, January 8th, 1889. This patient was so nervous, and irritable in disposition, that I feared she was becoming insane.

She dated the commencement of her disease back but seven months, but her *history* dated it back eighteen months, when she had a miscarriage at the fourth month of gestation. There had been no other pregnancies. Since this miscarriage she had suffered from dysmenorrhœa and metrorrhagia, often menstruating every fortnight. She had a great flow of a greenish yellow mucus, which would be quite profuse one or two days, then would almost disappear, for a week perhaps. She had a burning pain in the left iliac region which was continuous, but would grow more intense as her menstrual period approached, and then become

sharp, and shoot across the pelvis to the right side, at times extending over the iliac crests.

After advising with two of my consulting physicians, and with their advice, I removed the affected organs, the left fallopian tube and ovary.

The incision, three and a half inches long, was made in the median line, the lower angle of which was near the pubis. The left broad ligament was found to contain a fluctuating tumor, which proved to be the tube. It contained about an ounce and a half of thick greenish yellow pus, but not enough to destroy the flexures of the organ. The occlusion was caused by the sealing of the fimbriæ to the circumference of an ovary chronically inflamed, and enlarged to nearly twice its normal size by hypertrophy of its connective tissue stroma and cystic degeneration. It was of a dark brownish red color, with thickened envelope.

A loop of the small intestine was attached to the upper border of the tube near the uterus by a broad band of lymph, which contained a few small blood vessels. After liberating this and the adhesions to the rectum below, the pedicle of the tumor was ligated as near the uterus as possible. The severed end of the stump was seared with a cautery iron of low heat, just sufficient to destroy any pus cells that might remain after the sponging, or that might migrate into the peritoneal cavity from the remnant of the tube, between the ligature and cut end, as well as to close any blood vessel not sufficiently affected by ligation. The right broad ligament was found thickened, and apparently extending over and completely covering tube and ovary, as if by a lining or extension of pyogenic or adventitious membrane, which was flattened down and out like a spread umbrella. It was so dense that the condition of tube and ovary could not be learned simply by exploration from the peritoneal cavity, for by this means I could not say if such organs existed there. For the same reason, they could not

be brought up for visual examination without doing violence to them, and the surrounding cellular tissues, and the breaking up of this exudate, which the peritoneum seems abundantly able to care for, when it is no longer needed for its especial purpose of protection. The inference was that there were no depots of pus on this side, as no fluctuation had been found by vaginal examination, nor could any now be found from the abdominal cavity.

The wound was closed with silver wire sutures, which were removed on the sixth day. There were no abscesses in site of the incision, or suture points. The union looked solid and strong, and was loosely dressed. The patient, however, was so very uneasy and in such active motion that the superficial portion of the wound spread, but was subsequently closed with adhesive plaster, and healed in a short time.

The temperature went up to 100° F. on the second day, for about an hour, also on the third and fifth days. On the third day she was so hungry that she called for solid food.

Jan. 23 her menses appeared naturally and *without pain*, thus suggesting that tube and ovary on this, the right side, were intact.

Feb. 10 she sat up. Her irritability was greatly decreased. She was discharged Feb. 28, 1889, well, though not very strong. The last of March she wrote from a home in the country that she was perfectly well, and filled the place of servant to a family of three, and nurse to an invalid mistress.

In this case there was one symptom well marked which I have found noticed by but one standard author, and this in a late edition. It is that of a profuse leucorrhœal discharge, for one or two days, which then ceases, and does not reappear for several days. She also described the flow as about the same as the contents of the tube proved to be, changed, perhaps, by an admixture with uterine secretion.

I am certain that this one symptom will be found in many cases. If, as Quain tells us, the lumen of the canal, at the ostium uterinum, will only admit of a bristle, the question would be, how could such a thick and profuse secretion pass this orifice? How shall we account for such sudden flushes? Is it collected in the tube cavity, then, does the tube wall relax and contract so as to expel much of its contents in an ebb and flow like way, but with no definite quantity, or period of time for the appearance of the flow? Or does this discharge occur *only* when the position of the womb favors the gravitation of the fluid into that organ?

I have seen this symptom noticed in articles in recent medical journals, one of which was by M. Rosenwasser, in the *Journal of the Amer. Med. Association* of this month (May, 1889). In one special case that he cites "the tubes were discharged by the uterine canal and occasionally into the retro-uterine space! At least, he felt sure that this accident occurred, though he had not demonstrated it by operation.

This symptom was the one by which I diagnosed a hydrosalpinx in the verbal examination of a patient, near Albany, N. Y., in 1884. Dr. Tait, of England, was in Albany soon after, and saw the patient there, confirming this diagnosis, and Prof. Albert Vanderveer, of the Albany Medical College, demonstrated it, Nov. 21, '84, by removing the tubes by laporotomy, subsequent to Dr. Tait's visit. He notes this symptom when reporting the case in the *Albany Annals of Medicine*.

A patient that came to my care, some twelve years ago, had a large and full tube which dragged the uterus down and backward. So far as I could learn, no one thought at that time of removing these organs, unless they were found more or less disorganized in connection with large ovarian cysts. I treated the uterine cavity, as there was an endometritis and subinvolution. The size was reduced some-

what, and the cavity apparently cured. I advised her, when resting, to lie upon her side in a moderate Sims' position, which would cause the organ to gravitate so far forward, as to relieve the pressure upon the sacral nerves. I then dismissed her for a time. She came to me some four years afterward, when she said she was the same. I could make no examination. But, over a year since, I was suddenly summoned out of town to see her, as, after having much pain, "she had had such a quantity of *foul* pus flow away," she thought an abscess had ruptured. The flow had nearly ceased when I reached her. The uterus was in the same position as twelve years ago, but the tube, though holding much fluid, was smaller than formerly. I felt certain that it had recently been partially evacuated, as no abscess was to be found in the pelvis but this tube. In another visit, some weeks later, I found it had been still more reduced by the examination of another physician, who had been called in the mean time. She remarked that after *that* examination she "had more of that flow."

Some one may ask how or where the tubal contents are generated, as Quain and other anatomists describe the tubes as having no glands of their mucous membranes. So far as I can learn, no author tells us if it is an exudation from the blood vessels in the tube walls, or from the capillaries of the mucous membrane, or, is caused by a metamorphosis of the endothelium, or a combination of the last two. In hydro-salpinx the *increase* of the fluid appears to be periodical, and due to the menstrual congestion, after the fimbriated extremity is sealed. It is beyond my present experience to determine if a *pyo*-salpinx is a metamorphosis of the *hydro*-salpinx, or is a result of violent inflammation of the tube wall, or more properly termed mural salpingitis. If the former, is the fluid in the tube serum or mucus? Some one has said, we must have fibrin before we can have pus.

The *second* case cured by operation was in some respects of more interest than the first. While I could not *see* the exudate, I was sure that a pyogenic or false membrane had previously covered in the uterine appendages on each side, completely separating the pelvic from the abdominal cavity. One roof existed on the *right* side, as in the first case, and was intact. An entire diaphragm had existed on the *left*, but had been ruptured around the posterior border, and was reflected forward, leaving the posterior portion of the appendages free again, in the abdominal cavity.

From the fact of this membrane having been found torn, and of the rapid and certain recovery of the patient afterward, I shall never again so fear the wounding of such a formation, when necessary, when found in the pelvic or abdominal cavities, but will leave it only when useful to protect the cavities from pus.

The patient was admitted to the Chicago Hospital for Women and Children, Dec. 22, '88. She had had two children; one, three years old; one, three months of age. She had been in bed the six weeks preceding her entrance to the Hospital.

Her last labor, three months before, was natural, and she sat up on the tenth day. Her menses appeared six weeks after the birth. She had always been well up to this time, but was taken sick soon after she ceased menstruating.

Examination of the pelvis revealed a fluctuating tumor of the left broad ligament. There was subinvolution and tenderness of the body of the womb, with an extensive laceration of the posterior lip of the os and cervix, and endocervicitis. The endometrium was treated with an application of a two drachm solution of nitrate of silver, on the 7th, 14th and 21st days of January, which improved the condition much. The hot douche was also used twice daily.

Jan. 22 I explored the pelvic cavity by abdominal section, to ascertain if I could remove the cause of illness. It

was doubtful as to how much the patient's symptoms were due to endocervicitis, and how much to the tumor in the pelvis. As the latter appeared to be altogether a salpinx, I feared to make the traction necessary for repair of the cervix, as I might rupture a full tube or break up adhesions, with no opportunity of stopping resulting hemorrhage.

The incision, three and a half inches long, was made in the median line, and near the pubis. In the right side of the pelvis, the broad ligament was found extended to right wall of the pelvis, and flattened with a pyogenic membrane, as in the first case. In this case no fluctuation, neither tube nor ovary could be felt through this dense exudate, hence the whole was left undisturbed. On the left side, a fluctuating mass was found, partially covered, by what felt like an extra fold of peritoneum, reflected forward from the posterior border of the pelvis. The tumor was enucleated by insinuating the tips of the fingers under this fold without breaking the membranes. The mass, made by ovary and tube, was very firmly adherent to the lateral wall of the pelvis. The pedicle was broad, but was made secure with four sutures. A loop of the ileum had been fastened to the upper border of the tube, very near the left cornu of the uterus, as in the first case.

A few small blood vessels were found in this broad band of lymph, which were twisted with hemostatic forceps. In this case a large cystic ovary formed the greater portion of the tumor, with the fimbriated extremity of the tube spread out, and sealed to the largest circumference of the ovary. The tube contained a few drachms of whitish gray pus, and what appeared to the eye as debris of the white mucous lining, which appeared to have lost all vitality and become friable. Fine, white, fringy particles hung from its entire length. The ovary was not only largely cystic, but its connective tissue stroma had been greatly increased. The envelop was thickened.

In this instance, I could not but think that the primary inflammation was in the tube, as this organ was nearer degeneration. Yet all might have been the result of a pelvic peritonitis.

The severed pedicle was treated with a cauterizing iron, as in the first case. A drainage tube was inserted reaching to the left lateral wall of the pelvis, the site of the adhesions; this was removed in eighteen hours.

The temperature went up to $100\frac{1}{5}^{\circ}$ Far. on the second, fourth and fifth days. On the second day after the operation she had a stool of about half an ounce of dark blood, which I interpreted as the result of effusion from the intestine at the point of adhesion, caused by congestion from the necessary manipulation to stop hemorrhage. The patient was dismissed February 27th, 1889, and has been reported well within a few days.

In considering the plan of treatment, we ask *if* anything could have been done by medication, for either of these cases cured by the surgical method? In the last case with grayish, white pus, there seemed to be really a breaking down of the mucous membrane, as some of the flocculent particles hanging from the wall were like those in the fluid. In the ovary the cysts apparently occupied the locality of what should have been corpora lutea. In this case, as in the first, subsequent menstruation appeared to prove that the tube and ovary on the right side had been protected from the general conflagration of a pelvic peritonitis, which was, perhaps, begun on the opposite side when that membrane was formed. But the question which arises here is, what divided the attachments of this membrane on its posterior border? Was it done by some violent movement of the person, or had the membrane grown weak with age, and begun to disintegrate, beginning at the border?

One other case, a hydrosalpinx was that of a young woman about 19 years of age. The tube was free from the

ovary, and turned backward into Douglas' cul-de-sac. It contained between two and three ounces of an aqueous secretion. It was noted that when examined per vaginam, it would change places, or gravitate from the right to the left of the uterus, or remain directly behind that organ, according to the position of the patient. It was so distended that a spot as large as a dime, was so attenuated that its rupture, into the peritoneal cavity, must have shortly occurred. There was no other sign of peritonitis or cellulitis, than the complete occlusion of this tube.

Her symptoms were dysmennorrhœa and a constant burning pain, especially when she exercised in any way. There was no history of a watery discharge in her case.

One other case was what I called a pyosalpinx, although I did not prove it. The patient was a large healthy German girl, a housemaid, of vigorous constitution. She was reported to have had an abscess in her side a whole year and that it was discharging per rectum. I found a fluctuating body high up in the right iliac region. It had evidently united with the lower bowel and found an opening in the sigmoid flexure. After a catharsis it could not be felt. We dilated this old fistula from the opening in the bowel on several occasions and I worked many times to carry water into the cavity but without success. I then made an abdominal section. My incision was high, the abdominal walls were very thick, and after prolonged but unsuccessful search for the abscess, I was advised to close the wound, which I did rather reluctantly.

Subsequently, I once again endeavored to find the abscess cavity through that fistula, and purchased various kinds of gum catheters with which to find the sac and inject with warm water. I was about becoming discouraged when during the syringing with a soft English catheter, it suddenly slipped some eight or ten inches further than usual and into a cavity! The distance was so long, it seemed as if I

must be throwing water against the under surface of the diaphragm, and I looked for signs of shock. As she was quiet and had no change of color of the face, I let the water continue to flow for what seemed minutes, but probably was only seconds. I could never get the instrument into that cavity again. The patient improved however, from that day, and over a year after I heard of her as perfectly well. The abdominal wall was so thick and firm it was impossible to diagnose any tumor through it. I believe this was a pyosalpinx with the right tube dislocated backward, and the fimbriae were fastened with some length of the tube, high up on the rectum, where the purulent discharge was occurring.

Another case that came to me for treatment, and before I had thought of the radical cure by removing the appendages, was one in which I learned, by sad experience—how difficult it may be to aspirate or open successfully a filled tube per vaginam. I made an effort to do so, from the vaginal roof. The pus cavity was found with the hypodermic needle, and when changing this instrument for the bistoury, the sac was misplaced, and the bladder was wounded instead. This accident proved a significant fact, namely, that the abscess was a pyosalpinx, the walls of which would glide away with the slight motion given by respiration, or the force used from below to enter it with aspirator or bistoury, and that no fixation of pelvic cellular tissue would have any direct effect in *fixing* a filled tube. The case had been diagnosed as a pelvic phlegmon. I inserted a sigmoid catheter in the bladder, and the wound was soon well.

I afterward performed laparotomy, but fearing my ability to control the rupture of the tube, and the pouring of pus into the peritoneal cavity, I opened the abdominal wall low down, drew up the sac, and stitched it to the wall, inserted a drainage tube and syringed it daily. I saw the sac emptied;

it gradually closed up, and its lining grew white and friable. I then saw that it ought to have been removed, as the lining lost its vitality and at last became disintegrated. The patient was better for a short time and was discharged, marked improved. But I learned some months later that "she was getting sick again in much the same way."

Aetiology: From the histories of patients that I have cared for during the past few years, violent exercise just previous to menstruation has been named the cause. Sometimes it is a fall. A few have attributed it to excessive labor, which had brought on a miscarriage. It does not seem to be induced so much by "colds" taken during menstruation as does hæmatocele. It may succeed peritonitis, resulting from a catarrhal fever. In two of my cases of hydrosalpingitis, I could trace the cause to nothing but a slight pelvic peritonitis.

With all due respect to our eminent teacher, Dr. Emmet, I do not understand one statement of his to the effect that the inflammation of the tube is secondary to pelvic cellulitis in *every* instance, unless the primary inflammation originated in gonorrhœal poisoning. If this be so, I cannot understand why, I could not find some sign of cellular inflammation in the case of the young woman with hydrosalpinx. I believe it may be secondary to ovaritis, pelvic cellulitis, peritonitis, and to simple endometritis, or occur as a primary inflammation.

1. Diagnosis: By *verbal* examination we may get but little more than symptoms of ovaritis. Though, by the history, one special symptom is a leucorrhœal discharge, in an "ebb" and "flow" way, preceded with "burning pain and *cramps*," after some extra physical exertion.

2. If there is a large full tube, there is a feeling of weight and of pressure, as if a foreign body were in the pelvis.

3. There may be a greater pain on the opposite side of the pelvis from that affected, especially if the case is chronic,

and the ovarian ligament and the tube are contracted, the tube being empty, but shortened, or adherent to the lateral wall of the pelvis.

4. There may be, as in pelvic abscess, a discharge per rectum, vagina, or bladder, or externally.

5. Dysmenorrhœa, perhaps metrorrhagia, may occur. These are marked signs if occurring after childbirth. If we find these parts inflamed in those not having borne children, there is more frequently a decreasing menstrual flow until it ceases altogether.

6. By *physical* examination of the pelvis per vaginam, a tumor with a smooth elastic wall will be found in one ligament, which can be made to change its place with the change of position of the patient.

7. In mural salpingitis, there may be a thickening of the tube wall, so that it will be difficult to say where the uterine tissue terminates, and that of the tube begins. There will be a tenderness of the corpus uteri, also of the cervix but in a less degree.

8. The tubes may be felt as large cords attached to the pelvic walls as high up as the brim of the pelvis in front, and holding the womb imprisoned or suspended in whichever direction the tube or tubes are made fast.

9. If the tube is adherent to the pelvic wall, or is imbedded in a mass of cellular inflammation, there will be little or no mobility, and the firm elastic wall will be the only guide, unless it be the elongated form, and can be felt extending from one cornu of the uterus, but if the tumor is the ovary it will be more globular. In each of these three cases cured by operation the tubes were felt extending from the uterus out to the greater mass of fluctuation, which proved to be the well filled tube in one, and in the other the ovary sealed to the tube, in such a way that to the touch they seemed as one body.

With all the powers of observation awake to the difficulties of diagnosis in this disease, we may yet fail because of some complication often found.

Mundé says, in his admirable work on Minor Surgical Gynæcology, that at the present time (then in 1885) *what we need* is more accurate means than we now have of diagnosing the enlargement of the tube.

In the case of hydrosalpinx, in which there had been no leucorrhoeal flow, the tube was thrown backward and downward, and hung like a full pocket from the right cornu of the uterus. The last organ retained its normal position while the tube was moving from side to side in Douglas' cul-de-sac.

In Dr. Vanderveer's case, I do not remember the position of the womb, but the patient had been sick eight years, and the watery flow was profuse and frequent. In the one who supposed she had an abscess rupture, the womb was partially retroverted, so that in the supine position the tubes might naturally flow into the womb, as the fundus would mark the lowest point of a curve drawn from the fimbriated extremity of one tube to that of the one on the opposite side of the pelvis. I believe, the relative position of uterus and tubes has much to do with the having a discharge or not.

Treatment: If, by history and exploration, I believe that I have an acute or subacute case of salpingitis, with large thick tubes, I have hopes of reaching it by depleting the cervix uteri, by sacrifice; then increasing the circulation of the part with the hot douche. I do not depend upon the popular glycerine tampons, as the glycerine seems to extract the serum of the blood, when, if, according to our theory, a plastic exudation is occurring in such congested tissues from stagnation of circulation, the depletion should be by all of the constituents of the blood, as when the serum only has been withdrawn, the blood cells are left packed together in the capillaries with the *less* serum to carry

them onward. To deplete by extracting the blood in small quantities, and frequent repetition is the most effectual method in my experience. The secretions and excretions are to be regulated also, for as much is dependent upon this in this malady as in peritonitis.

If there is pelvic peritonitis, I would use leeches on one or both sides, as is necessary. If it is limited to one side only, I would order three leeches applied in the middle of a line drawn from the umbilicus to a corresponding ileo-pectineal eminence, and follow this with the hot linseed poultices. If double, I should order them used on both sides.

In regard to the treatment of a filled tube, many questions arise. We now may, with some certainty, diagnose a fluctuating tube, but who can say if with a watery or purulent secretion, unless a discharge occurs that comes in the "ebb and flow" way, indicative of having its origin in a fallopian tube? The fact of the existence of a fluctuation of the tube tells us that the fimbriated extremity is *closed*; and who can unseal it? It is no longer of use in the economy, but a source of constant pain and misery to the patient, and if filled with a purulent secretion, her life must be considered as in jeopardy *always*. She may be a woman depending upon her own earnings for a livelihood, or have one or more children in addition to her own life's care. Shall we place her in bed for a series of weeks, months or years, or tell her frankly of the probable radical cure by removing the organs?

I am told, by men of high standing in the profession, of their opening the tubes from the vagina, and of their great success. One writer reports having punctured a pyosalpinx high up in the right cervico-vaginal sulcus, and passing water through the fallopian tube into the uterus, and from the os uteri. He then adds, permanent recovery followed; and claims for this conservative treatment a great victory, as his patient was afterward a wife, and mother of two children.

In two of my cases of *ovariotomy*, the opposite ovaries from those removed were left, and in one case a child was afterwards born; yet I could not claim that it was from the normal condition of the side from which the appendages were removed. I believe the opening of the tube from the vagina is much more dangerous to the patient than the removal of tube and ovary by abdominal section, as there are so many liabilities of wounding bladder or intestines, and the leaking of the tube into the peritoneal cavity, before, or at the time when, it is evacuated through the vagina.

It may be that the ostium uterinum of the tube can yet be reached through the uterine canal, and dilated, thereby giving exit to the imprisoned secretion; but, if it could be done, who knows the result, if the tube be found in a degenerating stage?

I cannot assert here, as has so often been done by recent writers, that the filled tube has often been mistaken by our older authors for pelvic abscess of the cellular tissues; but I do know that we have pelvic peritonitis, and suppurating cellulitis in many localities simultaneously, and that the aspiration or opening with bistoury of one cavity will not affect the others; hence, we can open repeatedly, yet our patient will be in bed with hectic, and without hope of ever recovering her health. Even the physician will become discouraged, and pronounce her *incurable*. Schroeder is reported as saying that there are cases in which the contents of a pyosalpinx becomes thick and remains in the tube harmless; but I cannot think such cases are the ones which come frequently to the physician for treatment.

After learning the history of a patient, and knowing that the great irritation of the system, and accompanying pain, are caused by fluctuating tubes, shall we, with our knowledge of asepsis of instruments, dressings, the patient, the surroundings, the doctor and nurse, hesitate to hold out to the sufferer the hope of recovery by laparotomy?